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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,742	07/28/2003	Yasuo Aotsuka	0649-0904P	3834

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
TRAN, NHAN T	
ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/06/2007.

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mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/627,742	AOTSUKA, YASUO	
	Examiner	Art Unit	
	Nhan T. Tran	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/28/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Preliminary Amendment

3. Preliminary amendment filed 7/28/2003 to remove multiple dependencies of claim 4 is acknowledged.

Drawings

4. **Figures 22 & 23** should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. **Figures 2-8 and 11-21 & 23** are also objected to because hand-written characters are difficult to read. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagahama Hiroyoshi (JP 11-113005). *It is noted that this reference was translated to English by machine translation at Industrial Property Digital Library of JPO website.*

Regarding claim 1, Nagahama discloses a solid-state image pick-up device (CCD image sensor 51 in Figs. 1 & 2 that includes a real imaging area 51a and a light source detecting area 2 located in a light protection region; see paragraphs [0008]-[0009]) provided with a pixel (any one of CCD pixels in area 2) for distinguishing a light source type (i.e., a sunlight, a three-wavelength fluorescent lamp, a common fluorescent lamp) in a predetermined region (region 51b) of the solid-state image pick-up device, wherein a filter (any one of filters 21-1 to 21-20) for transmitting **a light having at least a wavelength of 520 nm or 580 nm** is provided as a filter for distinguishing a light source type to be mounted on the pixel for distinguishing a light source type (see Figs. 2, 3, 5 & 6; paragraphs [0009]-[0010], [0014]-[0015]).

Note: in the example of Fig. 6, the light source of three-wavelength fluorescent lamp has wavelengths spreading from approximately 380 nm to 760 nm. This light

satisfies "a light having at least a wavelength of 520 nm or 580 nm." As also disclosed by Nagahama in above paragraphs, any one of filters 21-1 to 21-20 is fully capable of transmitting a portion of the light at a certain wavelength and thus meets the least requirement for transmitting the light. Each energy level data D1 to D20 shown in Fig. 5 collected from the pixels corresponding to filters 21-1 to 21-20 is used to analyze for distinguish a light source type.

Regarding claim 2, Nagahama discloses that the filter for distinguishing a light source type also serves to transmit a light having a wavelength of 640 nm or more. See Figs. 3, 5 & 6 and paragraphs [0010] and [0014]-[0015].

Note: by incrementing 20 nm for each filter starting from filter 21-1 having the transmission of light wavelengths 380 nm – 400 nm, the filter 21-14 clearly transmits the light wavelengths of 620 nm – 640 nm. The light source of three-wavelength fluorescent lamp shown in Fig. 6 having wavelengths 380 nm to about 760 nm is also transmitted by the filter 21-14 at wavelengths 620 nm – 640 nm which satisfy the light characteristics required in both claims 1 and 2.

Regarding claim 3, Nagahama further discloses that the predetermined region (region 51b) is an invalid pixel region of the solids-state image pick-up device (see Fig. 2 and paragraphs [0009]-[0010], wherein the region 51b is a light protection region which is not a valid pixel region in consistence with the definition of invalid region defined by Applicant's specification. In fact, the valid pixel region is the imaging region

51a but not the region 51b since the region 51b contains pixel area 2 for the purpose of distinguishing a light source type and not for use as image data).

Regarding claim 4, Nagahama also discloses an image pick-up apparatus (Fig. 1) comprising an optical lens system (lens system as part of block 5), the solid-state image pick-up device (CCD image sensor 51) according to claim 1 which serves to convert a light signal incident through the optical lens system into an electric signal, and control means (CPU 32b) for processing a signal charge (V2) read from the pixel (any of pixels 21-1 to 21-20) for distinguishing a light source type of the solid-state image pick-up device to distinguish a photographing light source type (i.e., light sources from sunlight, a three-wavelength fluorescent lamp and a common fluorescent lamp are distinguished by CPU 32b based on the signal V2) and for automatically adjusting a white balance (by gain adjustment signal V3) of a color pick-up image (image signal V1 comprising R, G, B colors) of the solid-state image pick-up device (see Figs. 1-6, abstract, paragraphs [0011]-[0018]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 5-8, 9/5, 9/6, 9/7, 9/8, 10/9/5, 10/9/6, 10/9/7 & 10/9/8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagahama Hiroyoshi (JP 11-113005) in view of Ishimaru et al. (US 7,006,135 B2).

Regarding claim 5, Nagahama discloses a digital camera (Fig. 1 and paragraphs [0007]-[0008] and [0017]-[0018] in which the image pick-up apparatus shown in Fig. 1 comprises an image sensor 51, CDS 52, A/D converter 54, image processing block 4 and a control block 3 that inherently function as a digital camera) comprising color image pick-up means (CCD image sensor 51 having real imaging area 51a that captures a color image in R, G, B format) for picking up a color image of an object and signal processing means (image processing block 4) for separating a color signal output from the color image pick-up means into a color difference signal (R-Y signal, B-Y signal) and multiplying the color difference signal by a color difference matrix (color difference matrix 44 performs multiplying the color difference signal with coefficients A1 to A3 based on signal V4 sent from CPU 32b), thereby carrying out a color correction (see Fig. 1 and paragraph [0022]), wherein there is provided color difference matrix switching means (CPU 32b in combination with color difference matrix 44) for preparing a color difference matrix (by virtue of preparing coefficients A1 to A3 for the color different matrix 44) obtained when a photographing light source is a sunlight (all matrix coefficients A1 to A3 are prepared as "1" if the light source is a sunlight) and a color difference matrix obtained when the photographing light source is a specific light source (matrix coefficients A2 and A3 are prepared with values different than "1" when the light

source is a three-wavelength fluorescent lamp source) other than the sunlight and switching the color difference matrix (by switching the matrix coefficients A1 to A3) depending on whether a light source in the photographing is the sunlight or the specific light source, thereby carrying out the color correction (see paragraphs [0014], [0022] and [0024]).

Although Nagahama discloses the signal processing means for separating the color signal output from the color image pick-up means into a color difference signal, Nagahama is silent about separating the color signal output from the color image pick-up means into a luminance signal.

However, Ishimaru et al. (hereafter referred as "Ishimaru") teaches a digital camera comprising a signal processing means (Fig. 2, matrix processing section 8) for separating a color signal output (R, G and B) from an image sensor (CCD 3) into a luminance signal (brightness signal Y) and a color difference signal (R-Y signal, B-Y signal) so as to enable a display device (9) at a latter stage to display a color image with appropriate brightness Y (see Ishimaru; Fig. 2, col. 5, lines 64-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the digital camera in Nagahama in view of the teaching of Ishimaru to separate the color signal output from the image pick-up means into a color difference signal (R-Y, B-Y) and a luminance signal (brightness Y) to output sufficient color image data with appropriate brightness level so as to enable an optional display device attached thereon for displaying the color image for reviewing.

Regarding claim 6, Nagahama discloses the specific light source can be a common fluorescent lamp source (paragraph [0014]) but Nagahama fails to explicitly disclose that the specific light source is an F6 light source *(an ordinary **white** fluorescent lamp as defined in Applicant's specification, page 4, lines 1-8)*.

As taught by Ishimaru, a digital camera is capable of distinguishing a plurality of light source types including light sources from **conventional type fluorescent lamps** having characteristics of **white** color normal type, day **white** color type and daylight color type in addition to light sources from recently developed fluorescent lamps such as three-wavelength type fluorescent lamps (see Ishimaru, Figs. 4, 8 & 13; col. 6, lines 31-54; col. 8, lines 59-67 and col. 12, line 65 – col. 13, line 11). Ishimaru further teaches that, by precisely distinguishing a plurality of light source types, the signal processing of the camera is improved to prevent discoloration of background or excessive correction of a main object in the direction of a complementary color (Ishimaru, col. 13, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reconfigure the digital camera of Nagahama in view of the teaching of Ishimaru to include detection of an F6 light source (an ordinary white fluorescent lamp source) as a common fluorescent lamp source so that the white balance and color correction on captured image would be further improved to prevent discoloration of background or excessive correction of a main object in the direction of a complementary color.

Regarding claim 7, as disclosed by both Nagahama and Ishimaru, the specific light source is an F12 light source (3-wavelength type color fluorescent lamp source). See Nagahama in paragraph [0023] and Ishimaru in col. 6, lines 44-54.

Note: F12 light source is defined as 3-wavelength type color fluorescent lamp source in Applicant's specification, page 4, lines 8-14.

Regarding claim 8, it is seen in Nagahama that the specific light source includes a common fluorescent lamp source and an F12 light source (a 3-wavelength type color fluorescent lamp source as discussed in claim 7), each of color difference matrices for the common fluorescent lamp source and the FI2 light source is prepared as the color difference matrix (by preparing different matrix coefficients A1 to A3 as discussed in claim 5) for the specific light source, and the switching means switches the color difference matrix depending on whether the specific light source is the common fluorescent lamp source or the FI2 light source, thereby carrying out the color correction (see paragraphs [0014], [0018] & [0022]-[0023]).

Nagahama is silent about that the common fluorescent lamp source includes an F6 light source *(an ordinary **white** fluorescent lamp source as defined by the Applicant as discussed in claim 6).*

However, as taught by Ishimaru, a digital camera is capable of distinguishing a plurality of light source types including light sources from **conventional type fluorescent lamps** having characteristics of **white** color normal type, day **white** color type and daylight color type in addition to light sources from recently developed

fluorescent lamps such as three-wavelength type color fluorescent lamps (see Ishimaru, Figs. 4, 8 & 13; col. 6, lines 31-54; col. 8, lines 59-67 and col. 12, line 65 – col. 13, line 11). Ishimaru further teaches that, by precisely distinguishing a plurality of light source types, the signal processing of the camera is improved to prevent discoloration of background or excessive correction of a main object in the direction of a complementary color (Ishimaru, col. 13, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reconfigure the digital camera of Nagahama in view of the teaching of Ishimaru to include detection of an F6 light source (an ordinary white fluorescent lamp source) as a common fluorescent lamp source so as to enable the color difference matrix to be switched with appropriate matrix coefficients when the F6 light source is detected by the digital camera. Doing this would further improve the white balance and color correction on captured image by preventing discoloration of background or excessive correction of a main object in the direction of a complementary color as suggested by Ishimaru above.

Regarding claims 9/5, 9/6, 9/7 & 9/8, Nagahama in view of Ishimaru discloses a light source type distinction sensor (sensor 2 in Nagahama), the switching means automatically switching a color difference matrix (color difference matrix 44 in Nagahama) based on a result of detection of the light type distinction sensor (see Nagahama, paragraphs [0014], [0022] & [0024] and note that the analyses of claims 5-8 are also applied in this claim).

Regarding claims 10/9/5, 10/9/6, 10/9/7 & 10/9/8, as disclosed by Nagahama in Fig. 2, paragraph [0009], the light source type distinction sensor (2) is incorporated integrally with the color image pick-up means (51). It is noted that the limitation "incorporated integrally" is met because the light source type distinction sensor (2) and the color image pick-up means (51) are united by attaching the distinction sensor (2) on the image pick-up means (51) to form a single unit to output signals to CDS 52.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Saito et al. (US 6,181,374 B1) discloses an automatic white balance control for a video camera that control gains of amplifiers and changing signal process of a picture image in accordance with a percentage of white color shared in the picture image representing a light source type.

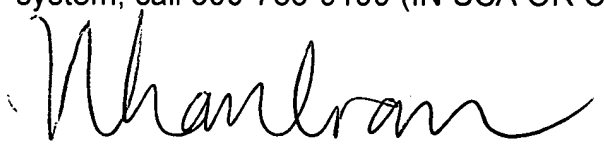
Aotsuka (US 7,148,920 B2) discloses a solid-state image pickup device that is capable of detecting a light source type and performs automatic white balance in accordance with a light source detected.

Miyano (US 5,644,358) discloses an automatic white balance adjusting device adjusts a white balance of white object under influence of sunlight, fluorescent lamp or tungsten lamp.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



NHAN T. TRAN
Patent Examiner